Municipal Separate Storm Sewer System Audit
City of Portsmouth, Virginia
November 8 – 9, 2005

Prepared for:
EPA Region 3
EPA Office of Water
Virginia Department of Conservation & Recreation

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Table of Contents

EXECUTIVE SUMMARY

Detailed findings from the Municipal Separate Storm Sewer System (MS4) audit conducted in the City of Portsmouth, Virginia on November 8-9, 2005 are presented in this report. The major general findings from the MS4 audit are as follows:

Update Storm Water Management Plan (SWMP).
The City's SWMP was developed over 10 years ago and has not been updated since that time.
The City must develop a written storm water management master plan (also referred to as a storm water management plan).

Storm water compliance at the Operations Center.
The City is not adequately addressing storm water issues at its Operations Center, as documented in Appendix A. This includes evidence of leaking vehicles, spills that have not been cleaned up, improper material storage, and the lack of proper controls for street sweeping waste.
The City must implement storm water controls at its Operations Center.

Field Screening Program
The City is not implementing an adequate program to identify and eliminate illicit discharges to its storm drain system. The tolerance levels are set too high which results in the City rarely having to investigate any discharges. Also, inspections are typically conducted in drop inlets which have minimal drainage areas and usually no flow.
The City must revise its field screening program to address the issues identified in this report.

Construction training
The permit requires the City to implement a training program for construction site operators, however, the City has not yet provided this training.
The City should institute training for construction site operators.

Annual Report
The City's annual report does not include all of the required elements listed in the permit, including facilities inspected and results of monitoring performed.
The City must include all required information in its Annual Report.

INTRODUCTION

At the request of U.S. Environmental Protection Agency (EPA) Region 3, EPA Office of Water, and the Virginia Department of Conservation and Recreation (DCR), an MS4 audit was conducted on November 8 -9, 2005 in Portsmouth, Virginia. The audit consisted of both a programmatic, in-office review and an in-field verification of program implementation.

The audit team included John Kosco and Christy Williams, Tetra Tech, Inc.; Mark Smith and Carol Petrow, EPA Region 3; and Doug Fritz and Danny Meadows, Virginia Department of Conservation and Recreation (DCR).

The City of Portsmouth, Virginia, was issued VPDES Permit No. VA0088668, effective from March 8, 2001 to March 8, 2006. Portsmouth is the only permittee under this permit, however, pursuant to Phase II NPDES regulations, the City entered into an agreement with the Portsmouth School Board to formally incorporate responsibility for the operation of their storm water system into the City's storm water program. Under the permit, the City is required to implement its storm water management program, including "pollution prevention measures, management or removal techniques, storm water monitoring, use of legal authority, and other appropriate means to control the quality and quantity of storm water…"

This report summarizes the findings of the municipal separate storm sewer system audit organized by the individual components described in the City's VPDES permit. Each program component section contains a summary of the findings associated with each program component along with any identified required and recommended actions. This audit did not review the City's stormwater management program effectiveness indicators (Permit Section C).

FINDINGS

1. Storm Water Management Master Plan (Permit Sections A.1.)

Permit Section A. requires the City to "continue development, implementation and, where appropriate, refine the Storm Water Management Program" and to "update it as necessary." Permit Section A.1.a(2) requires the City to adhere to and enforce all components of "the Storm Water Management Master Plan." The City, however, has not developed such a planning document. The City's current storm water management program is as described in its Part 2 application, submitted to Virginia DEQ and EPA over 10 years ago.

The City did develop a plan on *Stormwater Management Program Challenges and Choices: Renewing Our Infrastructure* in October 2003. Although the City refers to this as a "stormwater management plan," it is largely a strategic and financial planning document that does not include the detailed programs and activities expected in a stormwater management plan.

Required actions: *In accordance with Section A. of Permit No. VA008868, the City must develop and maintain a written Storm Water Management Master Plan (also referred to as a storm water management plan).*

Recommended actions: *None.*

2. Commercial and Residential Structural and Source Controls (Permit Section A.1.a.)

The permit specifies the following requirements in order reduce pollutants discharged from commercial and residential areas:

a. Maintenance of Structural Controls Owned and Operated by the City (Permit Section A.1.a.(1))

A large portion of the City has surface drainage without curb and gutter. The ditches which control storm water runoff are cleaned three times per year using shovels and rakes. Catch basins are prioritized by inlet type and are cleaned at least annually. Storm water conveyance pipes are cleaned if they become clogged, but there is not a regular system of prioritization and maintenance of these lines. Prior to rain events, the City checks major outfall areas to clean and reduce flooding. Maintenance activities are tracked in spreadsheets. Spoils from the catch basin cleaning are decanted into the sanitary sewer at a City facility located on Godwin Street, and the solids are disposed of at a landfill.

The storm water infrastructure was mapped during the development of a storm water physical asset valuation in 2003.

Spoils cleaned from catch basins are not characterized based on type, possible source, or other factors to identify possible "hotspots" for certain pollutants, and field crews have not been officially trained to recognize indicators of illicit discharge. In addition, while City staff indicated that field crews are encouraged to notify the storm water coordinator if they see anything unusual, no formal notification procedure has been established.

Required actions: *None*.

Recommended actions: *The City should do the following:*

Evaluate data on material and trash cleaned from the storm sewer system (e.g., ditches and pipes) to identify areas in need of additional source controls, which can include additional trash receptacles, more intensive education regarding dumping, or increased frequency of cleanup events. Source evaluation can also indicate a need for treatment controls, such as retrofitting the storm drain system with trash racks or hydrodynamic devices.

b. New Development and Redevelopment Controls (Permit Section A.1.a.(2))

The permit requires the City to adhere to components of the Comprehensive Master Plan, Storm Water Management Master Plan, and all storm water-related ordinances pertaining

to development and redevelopment. As discussed in Finding 1 above, the City has not developed a "storm water management master plan."

The primary program the City uses to address new development is the Chesapeake Bay Preservation Area Overlay District found in Chapter 9.1 of the City code. This ordinance requires a development plan for all development and redevelopment exceeding 2,500 square feet of land disturbance within the resource protection area (generally within the 100-foot vegetated buffer of water bodies). A development plan may be required for Resource Management Areas, which are the 100-year floodplain or within 530 feet of the landward edge of the resource protection area.

The Planning Department manages the Chesapeake Bay Preservation Area Program with the Stormwater program reviewing BMPs and stormwater plans. The City stated that it is waiting for DCR to revise the state stormwater management program before making any changes to its new development requirements. Plans are not specifically required to include source controls, such as practices to minimize exposure of pollutants to storm water runoff.

***Required actions*:** *None.*

Recommended actions: *The City should do the following:*

1) Review and if beneficial, require post-construction water quality BMPs, similar to those required in the Chesapeake Bay Preservation Area, in all parts of the City.

2) Develop specific source control standards for common new development projects.

c. Maintenance of Public Streets, Roads and Highways (Permit Section A.1.a.(3))

The permit requires that the City "maintain the existing programs designed to reduce impacts on receiving waters from the operation and maintenance of public streets, roads and highways." The frequency of street sweeping varies across the City. Downtown is swept twice per week, residential streets are swept monthly and major corridors are swept at least weekly. The City has regulations which require leaves to be bagged and left on the curb for pick-up as opposed to piled in the street.

Spoils from street sweeping are dewatered at the City Operations Center. The drainage sheet flows over pavement before discharging off-site with no treatment.

The City contracts out most street maintenance and repairs, however it was unclear whether the contracts specify BMPs or address water quality practices the contractors must follow.

The parking lots of City-owned facilities are not swept. During the site visit at the Operations Center (described in Appendix A), the audit team noted considerable

accumulation of gravel, dirt, motor oil absorbent and other materials in the parking lots and paved areas.

Required actions: *Per Section A.1.a.3. of the permit, the City is required to do the following in order to reduce the water quality impact from activities related to the maintenance of public streets, roads and highways:*

(1) The discharge of untreated street sweeping spoil decantation water is prohibited. Discharge of this wastewater cannot occur to a storm drain, ditch, or in any other way discharge to the MS4 system. The City is required to comply with this requirement immediately by implementing the necessary source control and/or treatment BMPs.

(2) The City must regularly sweep the parking lots of the Operations Center in order to prevent the discharge of gravel, dir, motor oil absorbent or other materials to the MS4 system.

Recommended actions: *The City should do the following:*

(1) In order to ensure that City contractors are knowledgeable and implement the controls necessary to minimize pollutant discharge during street repairs, the City should require that necessary minimum measures be followed in requests for proposals and contractual agreements with outside labor.

(2) The City should develop a regular schedule of street sweeping for all municipal facility parking lots in order to minimize the discharge of pollutants.

d. Assessment of Flood Management Projects (Permit Section A.1.a.(4))

The permit specifies that the City is to "assure that flood management projects assess the impacts on the water quality of receiving water bodies." In 2003, the City developed a document entitled "Storm Water Management Plan," which included a storm water physical asset valuation, an operation and maintenance plan, and a lake and pond management strategy. The plan was adopted on October 27, 2003, and serves as the City's roadmap to addressing storm water management issues. As a first step in implementing the lake and pond management strategy, the City is prioritizing 25 storm water management ponds (many privately-owned) based on water quality needs and developing management recommendations. Approximately one-third of the ponds have been assessed and the evaluation is expected to be completed in the spring of 2006. Once the assessment is completed, the City will develop a plan for retrofits, management, and maintenance of the ponds.

Required actions: *None.*

Recommended actions: *Once the lake and pond assessment is complete, the City should do the following:*

(1) Require maintenance certifications for all privately maintained water quality BMPs.

(2) Perform inspections of private facilities to assess compliance.

(3) Develop an inspection and maintenance schedule for municipal facilities.

(3) Track and report information in the City's annual report such as the inspection frequency and type of maintenance performed for each facility.

e. Pesticide, Herbicide, and Fertilizer Management (Permit Section A.1.a.(5))

The permit requires the City to reduce discharges associated with pesticides, herbicides, and fertilizers and maintain a public relations plan to educate the general public and targeted groups about herbicides, pesticides, and fertilizers. The City's Parks & Recreation Department uses only certified applicators for municipal properties. Only one insecticide is used in the City. Herbicides are used only after staff "monitor" the location to determine if the level of weed growth warrants application.

HRSTORM, the Hampton Roads Regional Storm Water Committee, develops all educational materials for the City (see Section 3.c. of this report). A brochure called *Landscaping for Your Waterways* has been developed to educate the general public about landscaping. A link to the downloadable document is available from the City's main storm water web site.

Required actions: *None*.

Recommended actions: *The City should consider implementing programs which address integrated pest management (IPM) and nutrient management from residential sources such as pet waste and lawn fertilizers.*

3. Illicit Discharge Detection and Elimination (Permit Section A.1.b.)

The permit requires the development of a program and schedule to detect and remove, or to notify a discharger to apply for a separate VPDES permit, for unauthorized non-storm water discharges and/or improper disposal. The following requirements are specified:

a. Enforcement of Storm Sewer System Discharge Ordinance (Permit Section A.1.b.(1))

Section 31.1-3 of the Portsmouth Municipal Code (Code) defines prohibited non-storm water discharges, identifies penalties for violation, and authorizes enforcement to the director, his designee, police officers, and fire marshals. The City performs dry weather field screening, responds to citizen complaints, and uses the Hazardous Materials Response Team and the Office of the Fire Marshall inspection, spill response, and prevention program to prevent non-storm water discharges. In FY05, 23 illicit discharge reports were received by citizens with all complaints being resolved by sending letters instead of taking enforcement actions.

Required actions: *None*.

Recommended actions: *None.*

b. Field Screening (Permit Section A.1.b.(2))

The City is required to identify unauthorized non-storm water discharges or improper disposal by field screening segments of the storm sewer system. In addition, priority is to be given to industrial and commercial areas. The City inspects 75 locations randomly selected every summer to check for dry weather flows. However, many of these inspections occur in drop inlets instead of manholes or outfalls. The City generally targets industrial areas for inspection. In addition, the City reinspects any locations that had flow the previous year. The City has developed a *Field Screening Plan and Procedures Manual* (revised May 17, 2005) to outline the methods used during dry weather screening.

If flow is observed at the selected location, the discharge is tested in the field using CHEMetrics tests for pH, chlorine (total), copper, phenol (total), and detergents. If the necessary color change does not occur, then a value of 0 mg/L is recorded. According to City staff, if the discharge is determined to exceed the "tolerance levels" for each parameter developed by the Hampton Roads Sanitation District (HRSD), then a sample is sent to the HRSD for laboratory testing to confirm the results. Staff stated, however, that field test results have never found levels above the tolerance levels; therefore the HRSD laboratory has never been used in this way. City staff were not aware of the criteria used to develop the tolerance levels initially, however, the procedures manual stated they were based on concentration ranges available in CHEMetrics tests.

Three sites were determined to have flow in 2005 and the source was determined to be groundwater intrusion, as no other source could be identified. Analytical results submitted in the annual report indicated a 0 mg/L value for each sample for copper, phenols, and chlorine (total), two samples indicated 0 mg/l for detergents, and one sample indicated 0.25 mg/L for detergents, but the tolerance level is 3 mg/L therefore no additional sampling was conducted. As stated previously, a 0 mg/L result indicates a non-detect.

The tolerance levels used by the City are significantly higher than what other stormwater programs follow. For example, EPA's proposed 2006 Multi-Sector General Permit (MSGP) requires industrial facilities to revise BMPs when monitoring results are above certain benchmarks. The proposed 2006 MSGP uses a benchmark of 0.014 mg/L for total recoverable copper, while the City uses a tolerance level of 3 mg/L for total copper (more than 200 times higher). For phenols, the proposed 2006 MSGP specifies a benchmark of 0.016 mg/L, while the City's tolerance level is 10 mg/L for total phenol (more than 600 times higher).

> ***Required actions***: *The City is required to:*
> 1*) Conduct most field screening at outfalls or in manholes instead of drop inlets to ensure a larger drainage area is inspected.*

Recommended actions: *The City should do the following:*

> *1) Revise the tolerance levels for the three parameters in the field screening manual to be more in line with EPA and other accepted benchmark or indicator values.*

2) Consider additional parameters for testing, including turbidity, temperature, conductivity, and other parameters indicating a potential illicit discharge.
3) Revise the "Field Screening Plan and Procedures Manual" based on recommendations in the Center for Watershed Protection's document "Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments" (available at http://www.cwp.org).

c. Investigation of Illicit Discharges (Permit Section A.1.b.(3)) and Public Reporting of Illicit Discharges (Permit Section A.1.b.(5))

In addition to field screening, the City responds to citizen complaints. During 2005, 23 complaints were received and investigated. Each incident was resolved or forwarded to DEQ for investigation by Public Works staff. The City does not have a complaint hotline and instead receives calls through the main City information line or directly to Public Works staff. Staff phone numbers are included on educational brochures and in quarterly newsletters sent to businesses, civic leagues, homeowners, and City employees.

Illicit discharges detected by City field crews are reported to the storm water coordinator in Public Works, but there is no official process to ensure accurate and timely notification and investigation. Permit Section A.1.b.(3) requires the City to act as "expeditiously as possible" to eliminate unauthorized discharges.

Public Works supervisors have been trained on storm water issues, but field crews have not.

The bulk of the storm water public education conducted in the City is part of a regional initiative. The Hampton Roads Planning District Commission (HRPDC) coordinates and administers a regional storm water education program (HRSTORM). HRSTORM is a coalition of local government staff members who come together to share ideas and pool resources for targeted educational program efforts about storm water management. Recent programs have focused on proper disposal methods for auto maintenance products and household chemicals, proper pet waste management, and maintenance of best management practices. Focus issues are determined by a committee made up of municipal storm water employees. The HRSTORM program conducts media advertising, provides training for municipal staff, and produces print material such as brochures, curricula for schools, and flyers. HRSTORM has a toll-free number that allows the public to contact each participating municipality. Brochures and materials developed by HRSTORM are given to the municipalities to distribute.

Required actions: *None*.

Recommended actions: *The City should do the following:*
Train field crews to recognize the indicators of various types of illicit discharges and incorporate a standard operating procedure for reporting and notification if potential discharges or dumping are suspected (e.g., formal reporting form to be completed by the field crews and routed through the supervisor to the storm water program coordinator) to City staff and HRSTORM.

d. Spill Containment and Prevention (Permit Section A.1.b.(4))

The City is required to contain and prevent spills and respond to hazardous materials spills according to the Hazardous Materials Emergency Response Plan. The Portsmouth Fire Department has a Hazardous Materials Response Team to prevent, contain, and respond to any hazardous materials spill in the City. In 2005, the City's team responded to 29 hazardous materials spills.

As detailed in Section 4.a of this report and in Appendix A, however, spills and staining were documented in numerous locations at the Operations Center (e.g., motor oil, hydraulic oil) yet were not addressed even though spill response equipment was available on-site. One spill was occurring during the site visit (antifreeze leaking from a vehicle) and puddles of hydraulic oil were seen under several vehicles.

Required actions: *None.*

Recommended actions: *The City should do the following:*

Institute a program to ensure City staff are trained on spill response procedures and ensure all spills are cleaned in a timely manner.

e. Used Oil and Household Hazardous Waste Disposal (Permit Section A.1.b.(6))

The City's permit requires the implementation of education activities regarding the management and disposal of used oil and toxic materials (household hazardous waste). The regional Southeastern Public Service Agency (SPSA) provides waste management for the City, including household hazardous waste (HHW) disposal and used oil recycling facilities. The City advertises regional SPSA events and is developing a new brochure which addresses waste management issues. The City's storm water web site does not reference the service or facilities SPSA provides.

Required actions: *The City is required to do the following:*

The City's storm water web site should promote (i.e. provide a link) the HHW and used oil recycling services provided by SPSA to more directly educate residents about the connection between storm water and waste management and to increase participation in these programs.

Recommended actions: *None*

f. Sanitary Sewage Infiltration Prevention (Permit Section A.1.b.(7))

The permit requires the City to limit infiltration and inflow of sanitary sewage into the storm sewer system and restrict the interconnection of the two systems. The regional HRSD treats the sewage from Portsmouth, but the City maintains the collection system. In 1998, the City conducted an Asset Replacement Valuation Study and determined that 63 percent of the sanitary sewer system was beyond its useful life. The study also identified various programs to rehabilitate or replace targeted sections of the system.

The City proactively inspects and cleans sanitary sewer lines (55 miles in 2005, 400 miles to date) to check for cross-connections, cracks, and repair needs. If necessary, the lines are CCTV-inspected using a remote controlled audio device. In 2005, six miles of sanitary sewer were CCTV-inspected. If a failure or pipe collapse occurs, the segment is lined with a folded system or replaced. When any new developments occur in the City, the developer is required to replace the sanitary sewer infrastructure.

Required actions: *None*.

Recommended actions: *None*.

4. Industrial Structural and Source Controls (Permit Section A.1.c.)

The City's permit requires the development of a program to monitor and control pollutants from municipal landfills, hazardous waste treatment facilities, storage and disposal facilities, industrial facilities (subject to Section 313 of EPCRA), and facilities "determined by the permittee to be contributing substantial pollutant loadings" to the storm sewer system. The permit specifies the following requirements to reduce pollutants discharged from commercial and residential areas:

a. Facility Inspections (Permit Section A.1.c.(1)) and Monitoring (Permit Section A.1.c.(2))

The City inspects and samples the municipal landfill and maintains a list of VPDES-permitted facilities in its jurisdiction. The City has not, however, developed a program to comprehensively identify or evaluate the pollution potential of industrial facilities. Also, the City does not conduct specific storm water inspections at commercial businesses.

Fire safety inspections are being performed at businesses (2,985 businesses currently in the City) by the Fire Marshall's office, but the protocol for these inspections does not specifically address storm water issues. Annual inspections are attempted, but currently this level of inspection frequency is not being attained. The Fire Marshall is authorized to enter properties from which a release of hazardous material, waste, or other regulated substance has occurred or is "reasonably suspected to have occurred" and has entered the groundwater, surface water, or soils (Section 13.61 of the Code), but these inspections are reactive based on spills and releases and are not proactive to prevent imminent discharges.

Fire Marshals have not been trained, specifically, on storm water issues. Issues pertaining to storm water are only documented by the Fire Marshall if there is an active discharge. An informal referral system between the Fire Department and the Public Works storm water coordinator is used to inform storm water staff of possible issues at businesses.

The City is not currently using information available through the HRSD pretreatment program or that is being collected by the Health Department during restaurant inspections.

In addition, the City is not adequately addressing storm water issues at municipal facilities. In July of 2005, the City implemented a yard inspection procedure at all municipal yards. A yard inspection form has been developed to detail findings, and a standard operating procedure document was developed to assure consistency in inspections amongst staff. The Operations Center is divided into areas with individual supervisors responsible for performing the inspection. The City has not developed a stormwater pollution prevention plan (SWPPP) for the Operations Center to assist supervisors during their inspections.

Inspections were conducted in July and November as required, however, during the site inspection conducted during the audit, numerous storm water problems were documented (see Appendix A). Most of the issues in Appendix A were identified at least once during the 2005 inspections, however, none had been addressed and rectified at the time of the audit.

Required actions: *In accordance with Section A.1.c.(1) and (2) of the permit, the City must:*

(1) Assess industrial facilities in the City to determine if any facilities are "contributing substantial pollutant loadings" to the storm drain system.
(2) Develop a program for inspection and assessment of measures necessary or appropriate to minimize discharge of pollutants from these facilities of concern into the storm sewer system.
(3) To prevent illicit discharges and spill prevention at the municipal Operations Center, the City is required to either a) develop a facility-specific storm water pollution prevention plan (SWPPP) that should addresses spill prevention and good housekeeping procedures in addition to the specific items noted in Appendix A or b) develop an equivalent mechanism to establish and implement controls as necessary to ensure that the facility does not continue to contribute substantial pollutant loadings.
(4) Work with the Fire Department, Health Department and other programs to coordinate inspections and ensure that storm water issues are addressed at commercial facilities.

Recommended actions: *The City should do the following:*

(1) Work with the Fire Department, Health Department, and HRSD pretreatment programs to collect and use existing data to help identify priority areas.
(2) Develop a set of questions or inspection items to be considered by the Fire Marshal's office, Health Department, and HRSD, as well as a protocol for referring storm water violators to the Public Works Department for investigation and follow-up.

5. Construction Controls (Permit Section A.1.d.)

Permit section A.1.d requires the City to implement controls for construction sites including implementing City ordinances, an erosion and sediment (E&S) control program approved by DCR, and an education and training program for construction site operators.

The City requires any land disturbance of 2,500 square feet or more to obtain a Land Disturbance Permit from the City's Engineering Department. The City supplies developers with a set of E&S control plan requirements, which include a review checklist and general erosion and sediment control notes that are applied to most projects. The notes require the project proponent to submit E&S monitoring reports to the City at least once every 2 weeks, however the City stated that these reports are only expected from the largest projects.

The City requires project proponents to submit evidence of VPDES permit coverage. The City has two primary E&S control inspectors who have been trained by DCR. Inspections are entered into a database to track inspection and enforcement information. In FY2005, the City conducted almost 2,900 inspections at 274 projects. The inspectors issued 194 notices to comply and 60 stop work orders.

A summary of construction inspection observations is found in Appendix B. The inspectors were generally well-trained and conducted thorough inspections for erosion and sediment controls, but did not identify specific deficiencies associated with fuel storage and other non-sediment related pollutants.

The City stated that it does not provide any training to construction site operators and is waiting for training to be provided on a regional basis.

Required actions: *In accordance with Section A.1.d.(2) of the permit, the City must:*

(1) Implement a training program for construction site operators.

(2) Consider expanding the scope of erosion and sediment control inspections to include material management issues such as fuel storage, concrete washouts and other non-sediment pollutants.

Recommended actions*: The City should do the following:*

(1) Ensure that the general notes applied to project plans are consistent with how the City currently implements its construction site stormwater control program.

6. Annual Report (Permit Section A.3)

Permit section A.3 requires the City to submit an annual report by October 10 each year. The permit specifies information to be submitted, including "a summary of maintenance activity," "progress on plan reviews," and "the number and nature of unauthorized non-storm water discharges or improper disposal practices eliminated by the program."

The annual reports includes a fiscal analysis, summary of construction site inspections and public education materials distributed, illicit discharge program information, multi-jurisdictional activities, a pollutant load analysis, and a summary of the effectiveness indicators. The audit team compared the data that are required to be included in the Annual Report with the FY2005 Annual Report submitted on October 12, 2005. The FY2005 Annual Report did not include the following items:

- A listing of any facilities identified and inspected under Part I.A.1.c.(1) of this permit, a summary of any controls established for these facilities, and the

implementation schedule for any controls established for these facilities (specified in Part A.3.a.(5))
- Results of any monitoring performed in accordance with Part I.A.1.c.(2) of this permit (specified in Part A.3.a.(6))
- Identification of water quality improvements or degradation (specified in Part A.3.g)

Required Actions: *In accordance with Permit Section A.3, the City must include the following information in its Annual Report:*

1) A listing of any facilities identified and inspected under Part I.A.1.c.(1) of this permit, a summary of any controls established for these facilities, and the implementation schedule for any controls established for these facilities (specified in Part A.3.a.(5))

2) Results of any monitoring performed in accordance with Part I.A.1.c.(2) of this permit (specified in Part A.3.a.(6))

3) A written plan for how the City will identify water quality improvements or degradation (specified in Part A.3.g).

Recommended Actions: *The City should consider documenting Section 303(d) impaired waters and waters with already developed Total Maximum Daily Loads as part of the permit requirements in Section A.3.g related to "Identification of water quality improvements or degradation."*

7. Legal Authority (Permit Section B.5)

The City's legal authority for storm water primarily lies in Chapter 9.1, Chesapeake Bay Preservation Area Overlay District, Chapter 11, Excavation, Erosion and Sediment Control, and Chapter 31.1, Stormwater Management. Chapter 9.1 implements the requirements of the Chesapeake Bay Preservation Act. Chapter 11 generally requires erosion and sediment control plans for all construction activity disturbing at least 2,500 square feet. Chapter 31.1 contains general prohibitions against polluting storm water and authority to create and manage a storm water utility is specified in Article II of Chapter 31.1.

Required Actions: *None.*

Recommended Actions: *The City should do the following:*

Work with DCR to identify other legal mechanisms that can be used to hold dischargers accountable, recover cleanup costs, and help prevent future incidents.

8. Stormwater Management Program Resources (Permit Section B.6)

The City's projected stormwater revenue from its stormwater utility was approximately $3.3 million in FY2005. The Equivalent Residential Unit (ERU) billing rate is $4.50 per month per ERU as of July 2005. The FY2005 stormwater budget was $2.5 million with a proposed FY2006 stormwater budget of $3.8 million.

Required Actions: *None.*

Recommended Actions: *None.*

Appendix A - Inspection of the Municipal Operations Center

Overview

The audit team consisted of Christy Williams, Tetra Tech, and Doug Fritz, Virginia DCR, along with several staff from the City. The site was inspected in the morning of November 8, 2005.

The City of Portsmouth Operations Center (hereafter, Operations Center) consists of multiple buildings and material and equipment storage areas.

Findings

The paved areas of the Operations Center are not being swept and are a source of sediment, debris, and pollutants into storm drains.
The City does not sweep the parking areas at the Operations Center. The parking lots and other paved areas need to be swept regularly to reduce pollutant loads into the storm drain inlets. During the site visit at the Operations Center, the audit team noted considerable accumulation of gravel, dirt, motor oil absorbent, and other materials in the parking lots and paved areas throughout the facility (Photo 1).

The City dewaters the spoils from the street sweepers directly on the ground without adequate treatment in the Materials Yard.
The City street sweepers dump the spoils from sweeping into a pile in the Materials Yard of the facility. The drainage sheet flows over pavement before discharging off-site. The silt fence installed to prevent discharge of the water was not maintained properly (Photos 5 and 6) and is inadequate to treat dewatering drainage.

Leaks and staining were documented in numerous locations at the Operations Center (e.g., motor oil, hydraulic oil).
Throughout the facility in vehicle parking and maintenance areas, leaks and staining were noted (Photos 2, 8, and 9). An antifreeze leak from a vehicle was occurring during the site visit (Photo 7) and spill control measures had not been deployed.

Garbage trucks are parked near a storm drain inlet and numerous oil spills and truck drainage were evident.
The City's garbage trucks are parking near a storm drain inlet. There is no cover over the area and evidence of numerous hydraulic oil and historic garbage draining was apparent (Photo 3). The City has ordered a catch basin filter to be installed at the location, but it unclear whether this will be an adequate BMP.

There is evidence of spills around the facility's waste oil collection area, and storm water is currently discharged via a drain gutter directly through the area.

The waste oil collection area is located outside, uncovered, and adjacent to a rain gutter that directs roof runoff through the area, increasing the discharge of pollutants into the storm drain. (Photos 10 and 11).

Drums of paint waste are improperly stored.
Drums containing paint waste are being stored outside without cover or containment and are not properly labeled (Photo 4).

Photo 1: Evidence of debris and spills behind large City trucks.

Photo 2: Multiple pavement stains in the Operations Center lot near a drop inlet (circled).

Photo 3: Garbage truck parked near an unprotected drop inlet (circled).

Photo 4: Paint waste drums – contents of drums are not indicated on labels.

Photo 5: Sweeper spoils dewatering area. Sheet flow from spoils discharges untreated.

Photo 6: Poorly maintained silt fence installed to filter dewatering liquid discharges.

Photo 7: Active antifreeze leak from a City truck.

Photo 8: Leak from second City truck.

Photo 9: Leak from a third City truck.

Photo 10: Waste oil area with evidence of multiple spills. A downspout (circled) discharges storm water through this area.

Photo 11: Waste oil area (same as in Photo 10) with evidence of additional spills.

Appendix B - Summary of MS4 Audit Construction Inspection Observations

The audit team consisted of John Kosco, Tetra Tech, Carol Petrow, U.S. EPA Region 3, and Danny Meadows, Virginia DCR, along with City staff Cynthia Linkenhoker and two City inspectors. The audit team visited the following four construction sites in the afternoon of November 8, 2005:

- Maersk Terminal construction site
- WalMart demolition site
- Harley Davidson construction site
- Newport Subdivision Phase 1A

The inspectors attended DCR E&S control training and were generally very knowledgeable about E&S control requirements and BMPs. Inspection results are entered into a database and tracked, along with any enforcement actions associated with the project.

The inspectors did not specifically inspect for non-sediment pollutants such as fuel, concrete waste, or other potential storm water contaminants. These pollutants are addressed in the SWPPP required by DCR's VPDES permit.

The photographs below illustrate some of the findings from the construction inspections.

Photo 1: Maersk Terminal construction site – Fuel storage located adjacent to waterway (this site had more than 10 fueling areas located across the site).

Photo 2: Maersk Terminal construction – Detention pond with vegetated slopes. Detention pond receives drainage from most of the site and discharges into adjacent wetlands.

Photo 3: Harley Davidson construction site – side slopes of a channel lacked sediment or erosion controls because channel slopes were being worked at that time.

Photo 4: Harley Davidson construction site – Channel being actively graded during inspection (same channel as in Photo 3).

Photo 5: Harley Davidson construction site – Detention basin and outlet structure.

Photo 6: Newport Subdivision Phase 1A construction site – Detention pond with well-established perimeter vegetation.

Photo 7: Newport Subdivision Phase 1A construction site – storm drain with minimally protective inlet protection

Photo 8: Newport Subdivision Phase 1A construction site – adequate silt fence along back perimeter of project.